

# 5G-Loginnov / GLOSA

TAVF Up Fachveranstaltung

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Ralf Willenbrock, PM I.T.S.

T-Systems International GmbH

# 5G LOGINNOV

## Connected and Automated Logistics

**5G improves logistics and environmental challenges of European ports by connecting 5G devices, data analytics and next generation traffic management**

- Development and deployment of innovative ports and logistics hubs operation system integrated in 5G networks
- Optimise ports & logistics hubs operation reducing OPEX
- Reducing ports & logistics emissions (CO<sub>2</sub>, NO<sub>x</sub>)
- Regulate freight traffic on 5G logistics corridors according to the EU GREEN DEAL program





**UC8/9: 5G-LOGINNOV Floating Truck and Emission Data (FTED)**

**UC10: 5G-LOGINNOV 5G GLOSA and Automated Truck Platooning (GTP) under 5G-LOGINNOV Green initiative**

**UC11: 5G-LOGINNOV dynamic control loop** for environment sensitive traffic management actions (DCET)

**UC3: Optimal selection of yard trucks**

- Installation of a 5G access point on yard trucks
- 5G latency, precise localization services, etc.

**UC4: surveillance cameras / video analytics**

- Installation of connected 4K surveillance cameras
- AI/ML solution for container seal presence, human presence detection, social distancing etc.

**UC7: Predictive Maintenance**

- 5G access point installed on yard vehicles
- AP will collect and forward in real time with low latency telemetry data over the 5G network

**UC1: port control, logistics and remote automation**

**UC2: business critical and mission critical communications**

## Contribution of project lead partners



- **SWARCO** is Traffic Light and **Traffic Systems Provider**
- **SWARCO** is Traffic Management System (**TMS**) **Provider** in Hamburg
- **T1.3 Lead (LL infrastructure requirements) and GLOSA**



- **Continental** is **Automotive** Systems and Engineering **Supplier**
- **Supplier** of 5G and IoT based sensors **for Truck Telematics**
- **Sensor data supplier** for **Automated Truck Platooning and GLOSA**

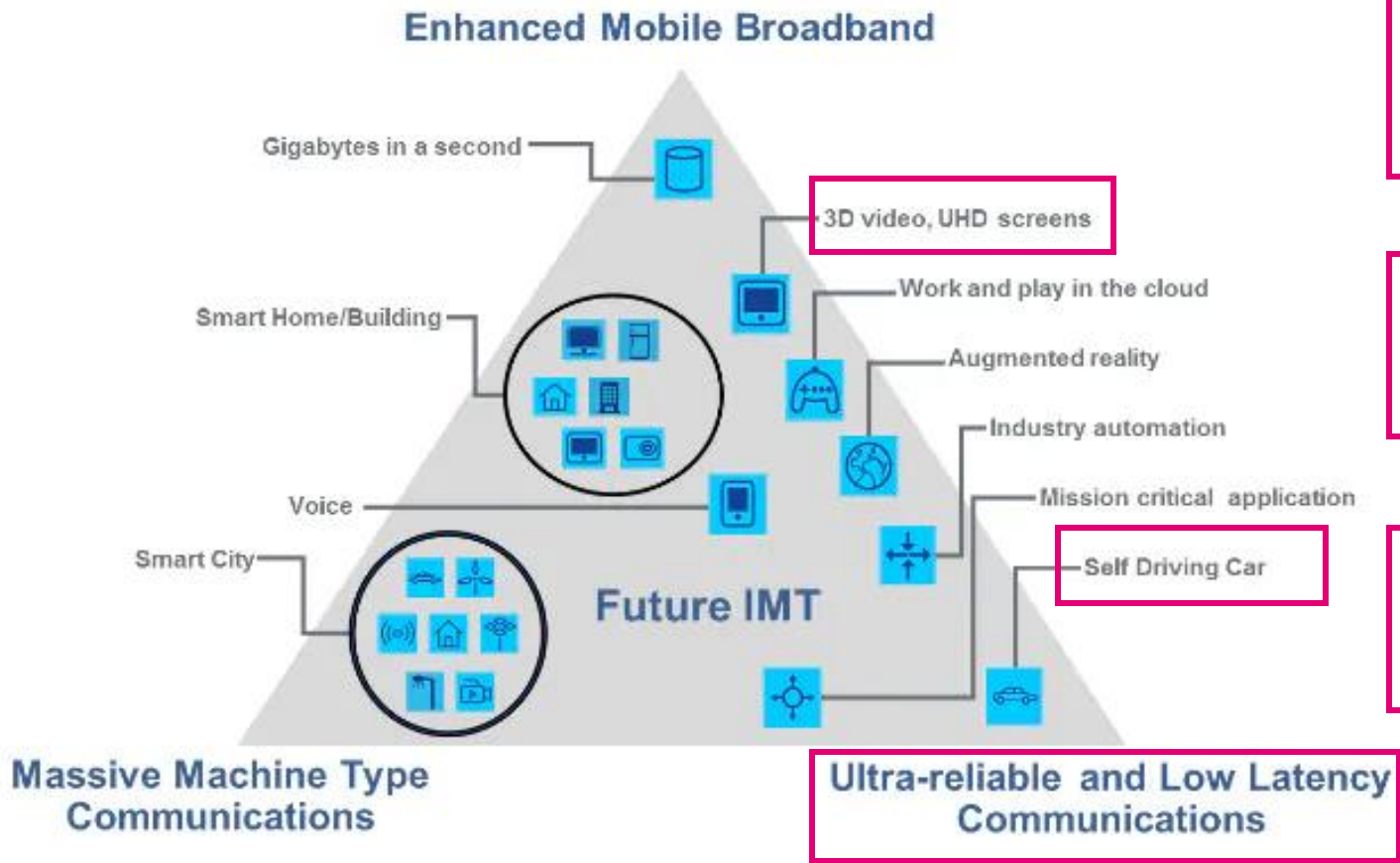


- **Tec4u** is a **Fleet and Engineering SME** for **Truck Telematics**
- **Tec4u** develops **logistics application** for Living Lab Hamburg
- **Support** and involvement **for SME's, Start-Ups and Market Deployment**



- **Deutsche Telekom** is national **mobile network operator** providing 5G-based services
- **T-Systems** is **Service provider** LCMM (Carbon Footprint Monitoring) and GLOSA
- **T-Systems** is **LL Hamburg coordinator**, WP3 lead beneficiary

# 5G ASPECTS COVERED IN 5G-LOGINNOV



5G enabled Precise Positioning, MEC

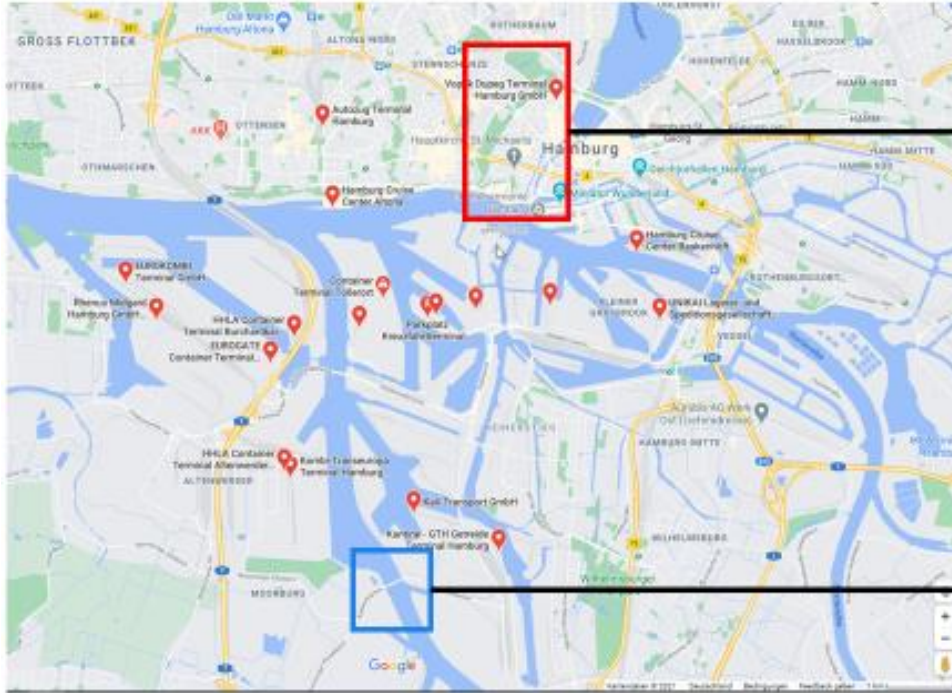
Real-time tracking & enhanced visibility

Automated Vehicle Platooning: <25ms cellular V2X /V2V

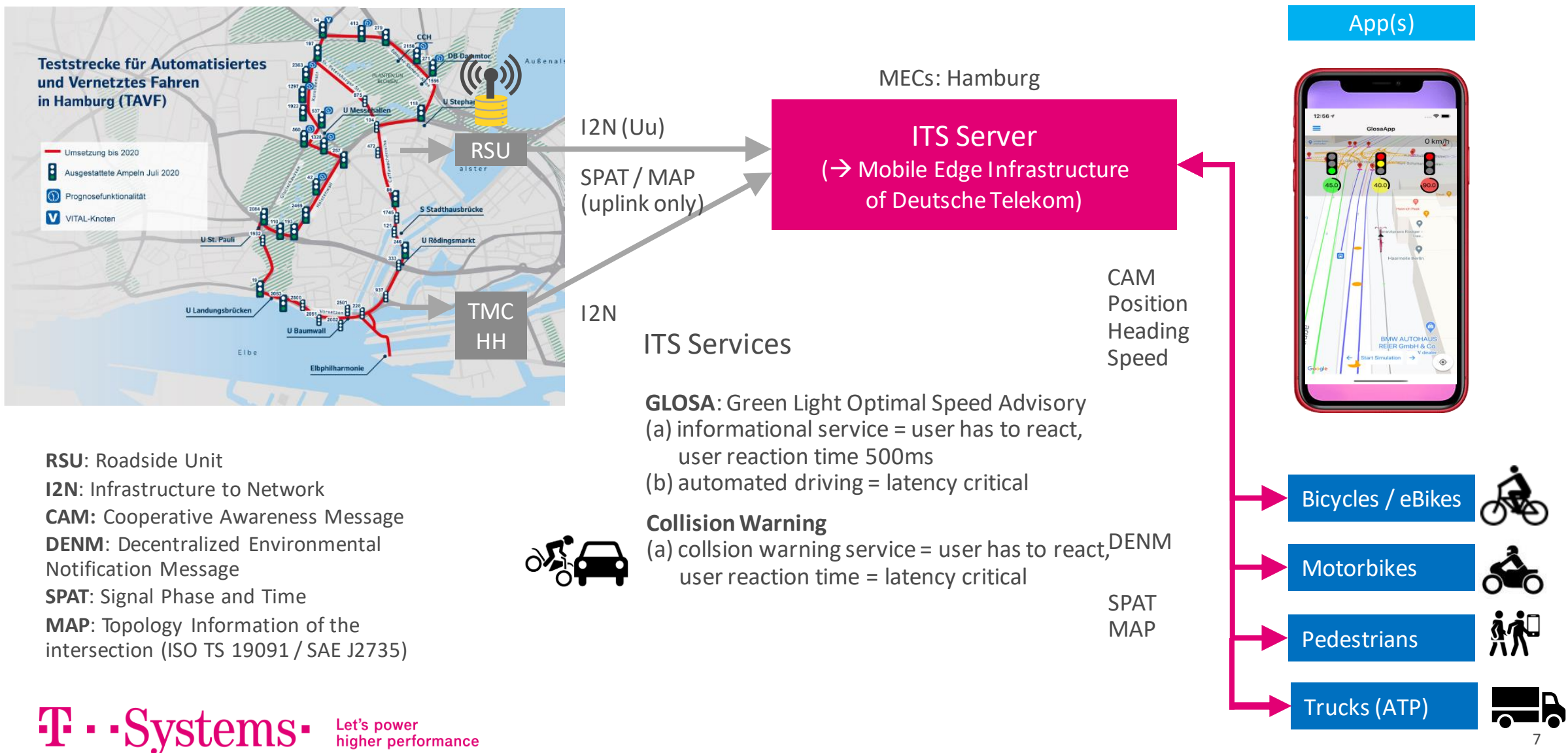


# Logistics corridor aspects in Hamburg

## LL Hamburg => TAVF & Kattwyk



# How does it work?



Apps: GLOSA, EnTruck, et. al



vehicle pos / speed data (CAM)

5G



environmental data  
aggregated movement data

Traffic Light Forecast  
(SPAT/MAP)



Service Centre



Virtual  
Traffic Management Centre

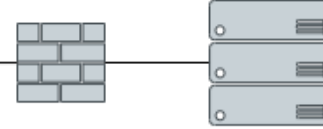
Traffic Signal  
State [forecast]

Traffic Management  
Strategy measures,  
vehicle trajectories for  
traffic control

other  
environmental data



City Traffic Management  
Centre(s)

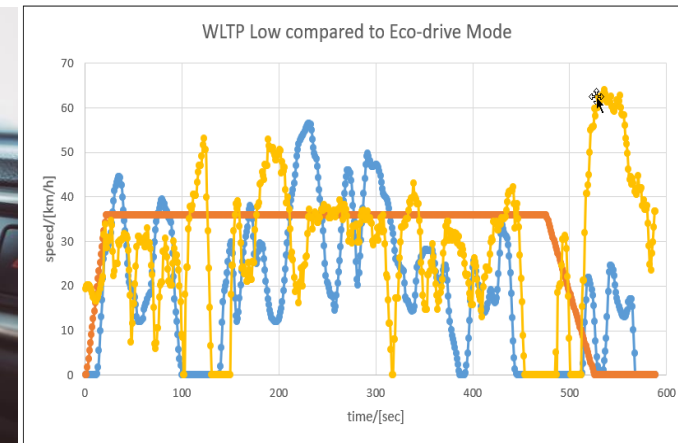


City access point  
(e.g Urban Data Platform)

# 5G enabled FTED for Sustainable Traffic Management

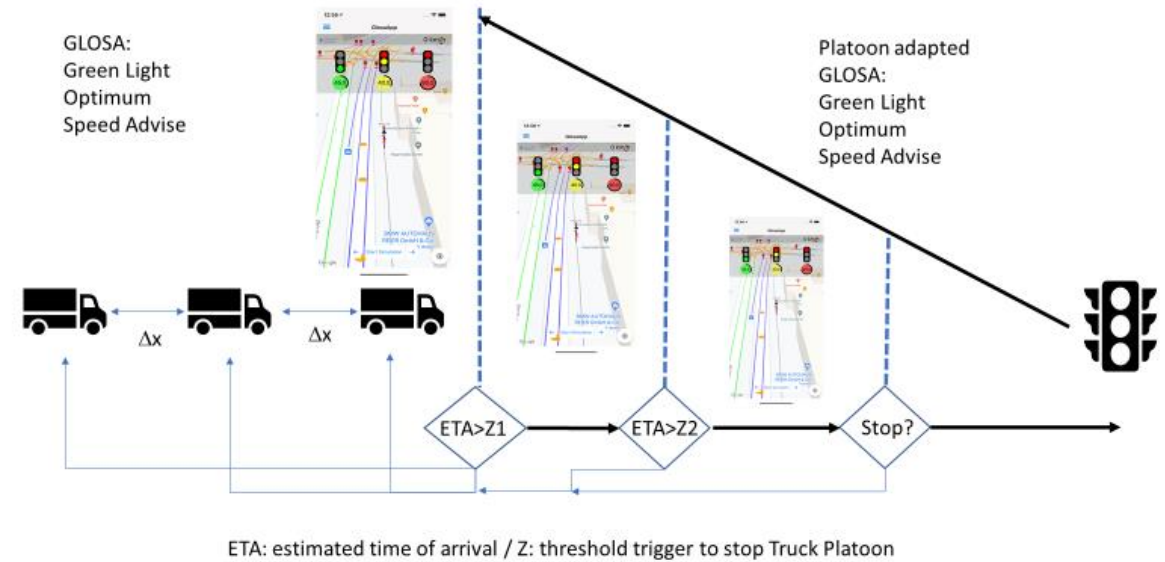
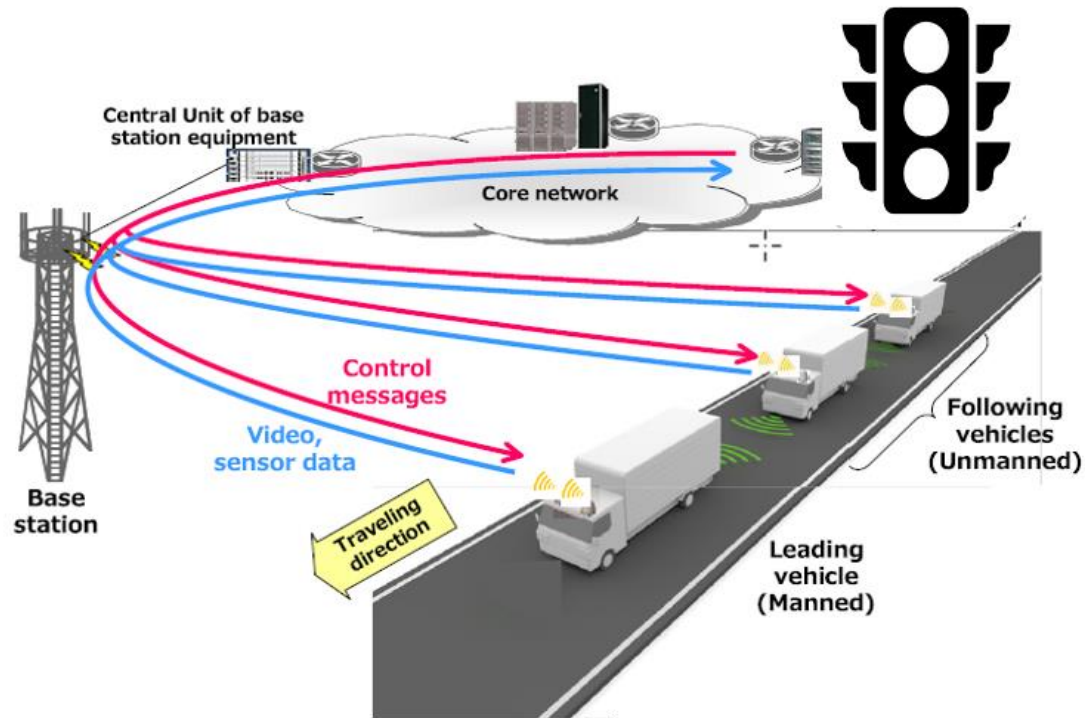


Low Carbon  
Mobility Management  
(LCMM)  
World-wide first  
ISO-23795-DIS  
compliant



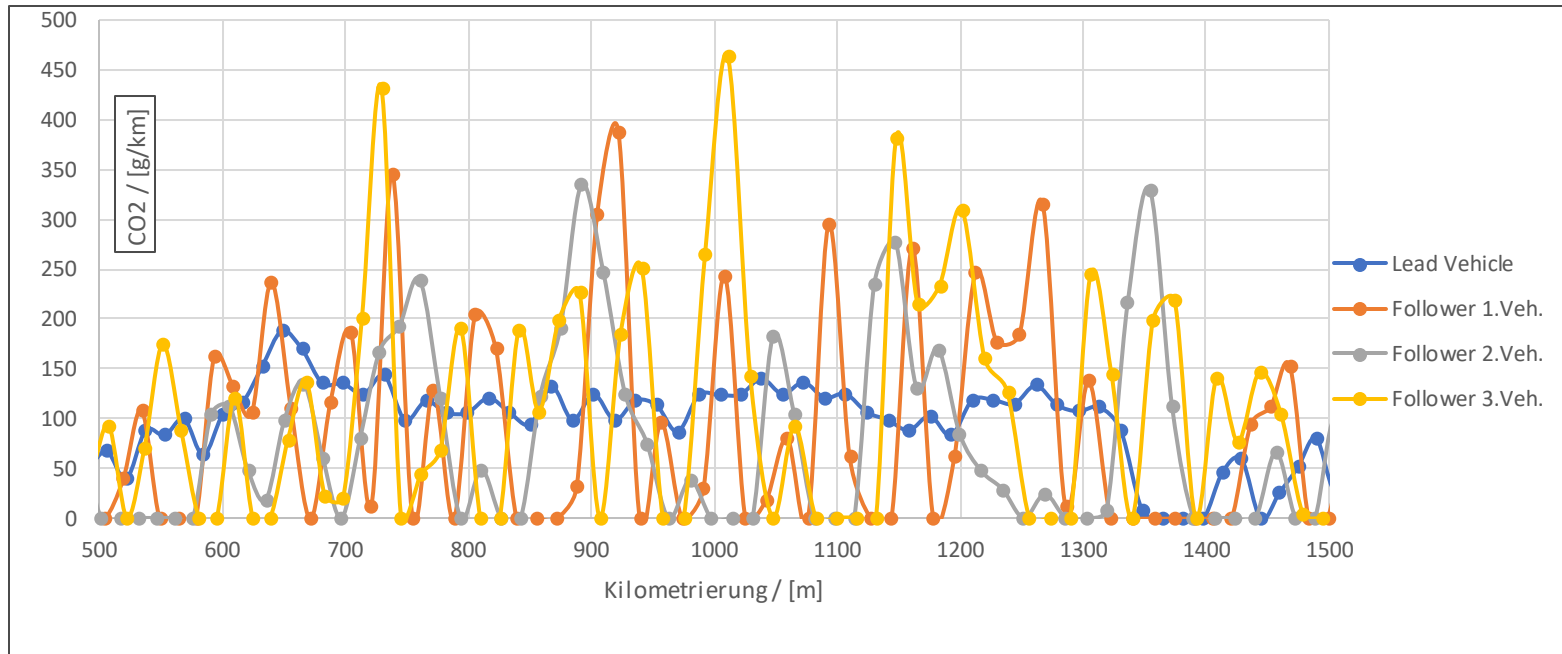


# SPAT/MAP for 5G GLOSA Vehicle Platooning



# First platooning tests using ISO/DIS-23795 Carbon Monitoring

Communication scenario		Payload (Bytes)	Tx rate (messages per second)	E2E latency (ms)	Reliability (%)	Data rate (Mbps)	Min range (m)
Scenario	Degree						
Cooperative driving for vehicle platooning Information exchange between a group of UEs supporting V2X application.	Lowest degree of automation	300–400	30	25	90		
	Low degree of automation	6500	50	20			350
	Highest degree of automation	50–1200	30	10	99.99		80



Thank you

[ralf.willenbrock@t-systems.com](mailto:ralf.willenbrock@t-systems.com)